

REMARKS

The Examiner is thanked for the thorough examination of the present application and the indication that claim 21 embodies allowable subject matter. The Office Action, however, tentatively rejected the remaining claims. In response, Applicant has amended claim 1 to incorporate the allowable subject matter of claim 21. This amendment places claim 1 in condition for allowance. Insofar as claims 2-6 and 23 depend from claim 1, these claims are in condition for allowance for the same reasons.

In addition, claim 11 has been amended by incorporating the subject matter of claim 25 and further adding "said error correction coding circuit using a (16,11) Hamming code". Support for the amendment is shown in paragraphs [0043-0044] of the original application. Accordingly, the amendment adds no new matter to the application. Cosmetic amendments have been made to claims 12 and 14 to improve the clarity of those claims. Claims 7-9, 17-19, 21 and 24-25 have been canceled.

35 U.S.C. 103(a)

Claims 1-9, 11-19, and 22-25 stand rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over U.S. Patent No.5,471,478 to Mangan et al. Applicant respectfully requests reconsideration and withdrawal of these rejections.

Independent claim 11 recites:

11. A system for improving repairing efficiency in a non-volatile memory, said system comprising:
 - a reading circuit for reading repairing data from an information array associated with said non-volatile memory to a volatile latch array associated with said non-volatile memory, said information array sharing said read circuit with a main memory array comprising said non-volatile memory;

an error correction coding circuit separate from said information array adapted to be enabled during reading of said repairing data including reading corrupted repairing data located anywhere in said information array, said repairing data for identifying and repairing defective columns or rows comprising said main memory array despite corruption of the repairing data as read;

a plurality of columns and rows each associated with said non-volatile memory, wherein each of said plurality of associated columns and rows is further associated with a respective I/O terminal; and

a spare column, wherein said error correction coding circuit using a (16,11) Hamming code to associate said spare column with at least two of each of said plurality of columns associated with both said non-volatile memory and with a respective I/O terminal.

(*Emphasis added*). Claim 1 patently defines over the cited art for at least the reasons that the cited art fails to disclose the features emphasized above. Specifically, Mangan does not teach, disclose or suggest said error correction coding circuit using a (16,11) Hamming code to associate said spare column with at least two of each of said plurality of columns associated with both said non-volatile memory and with a respective I/O terminal.

Instead, Mangan (FIG. 5 and col 5, lines 49-64) describes "In order to accommodate bad cells in the data sector region of a block, several spares are provided in each of the four rows of the block within the stack region 217. This is illustrated by spare cells 219, 221, 223 and 225 of FIG. 5. Also provided in each row is a field to store an ECC calculated from the data stored in the sector data cells of that same row. Referring to FIG. 5, a field 227 is provided for one of the rows, 229 for another, 231 for another and 233 for the last row of the block". Specifically, Mangan only relevantly discloses that each of the fields 227, 229, 231 and 233 stores an ECC calculated from the data stored in the sector data cells of that same row. However, Mangan does not

teach, disclose or suggest *said error correction coding circuit using a (16,11) Hamming code to associate said spare column with at least two of each of said plurality of columns associated with both said non-volatile memory and with a respective I/O terminal.*

For at least this reason, claim 11 is patentable over the cited arts, and the rejection of claim 11 should be withdrawn. Insofar as claims 12-16 depend from claim 11, they are also allowable. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988).

In view of the foregoing, all remaining claims are in condition for allowance.

If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

A credit card authorization is provided to cover the fee associated with the accompanying RCE application. No additional fee is believed to be due in connection with this submission. If, however, any additional fee is believed to be due, you are hereby authorized to charge any such fee to deposit account No. 20-0778.

Respectfully submitted,

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